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PATENT

Attorney Docket: D1815-00068

5           What is claimed is:

1.       A fabric reinforcement useful in reinforcing an alkaline matrix comprising:

(a)     a plurality of warp yarns having a first twist (turns/inch);

(b)     a plurality of weft yarns having a second twist which is greater than said first twist; and

10           (c)     a resinous coating disposed over a substantial portion of said warp and weft yarns after they have been assembled or laid together, such as to produce a coating weight distribution ratio of less than about 2.0:1, based upon the weight of the resinous coating on the weft yarns over the weight of the resinous coating on the warp yarns.

15           2.       The fabric of claim 1 wherein said warp yarns comprise a first twist of about 0-.5 turns/inch.

3.       The fabric of claim 2 wherein said weft yarns comprise a second twist of about 0.5 – 1.3 turns/inch.

4.       The fabric of claim 1 wherein said warp yarns, said weft yarns, or both, comprise glass fibers.

20           5.       The fabric of claim 1 wherein said warp yarn and weft yarns are assembled into one or more of:

a woven fabric, knit fabric, laid scrim fabric, or braided fabric.

6.       The fabric of claim 1 wherein said resinous coating comprises a pvc-based plastisol.

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- 5           7.       The fabric of claim 1 wherein said plurality warp yarns are drawn in tension prior to the application of said resinous coating.
8.       The fabric of claim 1 wherein said warp yarns are selected to include, or are treated with, a hydrophilic agent, prior to a water based coating, or an oleophilic agent prior to a pvc plastisol coating
- 10          9.       The fabric of claim 1 wherein said weft yarns are selected to include, or are treated with, an oleophobic agent prior to a pvc-based plastisol coating, or a hydrophobic agent prior to a water based coating.
10.      A reinforced cementitious board comprising:
- (a)     a cementitious core; and
- 15          (b)     a reinforcing fabric disposed on at least one face of said cementitious core; said reinforcing fabric including:
- (i)     a plurality of warp yarns having a first twist (turns/inch);
- (ii)    a plurality of weft yarns having a second twist which is greater than said first twist; and
- 20          (c)     a resinous coating applied to said reinforcing fabric in a coating weight distribution ratio of less than about 2.0:1 based upon the weight of the resinous coating on the weft yarns, over the weight of the resin on the warp yarns.
11.      The cementitious board of claim 10 wherein said cementitious core comprises Portland cement.

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5           12.     The cementitious board of claim 10 wherein said reinforcing fabric comprises a woven, braided, nonwoven mesh-type or knitted fabric.

          13.     The cementitious board of claim 10 wherein said first twist of said warp yarns is about 0-.3 turns/inch.

          14.     The cementitious board of claim 13 wherein said second twist of said weft yarns  
10 is about .7-1.0 turns/inch.

          15.     The cementitious board of claim 10 wherein said resinous coating comprises an alkali-resistant resin.

          16.     A reinforced cementitious board comprising:

          (a)     a cementitious core comprising Portland cement; and

15           (b)     a reinforcing fabric disposed generally around and embedded into a portion of said cementitious core; said reinforcing fabric being composed of a multifilament yarn-based woven, braided, nonwoven mesh-type, or knitted fabric which includes:

          (i)     a plurality of warp yarns having a first twist (turns/inch);

          (ii)    a plurality of weft yarns having a second twist, said second twist being  
20 greater than said first twist; and

          (c)     an alkali resistant resinous coating applied to said plurality of warp and said plurality of weft yarns after they have been assembled or laid together, such as to produce a coating weight distribution ratio of less than about 2.0:1 based upon the weight of the resinous coating on the weft yarns over the weight of the resinous coating on the warp yarns.

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5           17.     The cementitious board of claim 16 wherein said reinforcing fabric comprises sized glass fibers.

          18.     The cementitious board of claim 16 wherein said warp yarns have a twist of about 0-.3 turns/inch.

          19.     The cementitious board of claim 18 wherein said weft yarns have a twist of about  
10   .7-1 turns/inch.

          20.     The cementitious board of claim 16 wherein said alkali resistant coating provides alkali resistance to said reinforcing fabric beyond one year in a Portland cement board.

          21.     The cementitious board of claim 20 wherein said resinous coating comprises a pvc matrix having an oil phase distributed therein.

15           22.     A multifilament yarn-based woven, braided, nonwoven mesh-type, or knitted fabric comprising:

          (a)     a plurality of warp yarns having a first twist (turns/inch);

          (b)     a plurality of weft yarns having a second twist, said second twist being greater than said first twist; and

20           (c)     a resinous coating applied to said plurality of warp and said plurality of weft yarns while the warp yarns are being pulled in tension in a machine direction, such that the weft yarns absorb less of said resinous coating than said weft yarns would absorb if the second twist of said weft yarns was equal to the first twist of said warp yarns.

          23.     A cementitious board incorporating the multifilament yarn-based woven, braided,  
25   non-woven mesh-type or knitted fabric of claim 22.

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5           24.     The fabric of claim 22 wherein said resinous coating comprises a alkali resistant resin.

          25.     A multifilament yarn-based woven, braided, nonwoven mesh-type, or knitted reinforcement comprising:

          (a)     a plurality of warp yarns containing a glass filament having a first twist of about  
10   0-.3 turns/inch.

          (b)     a plurality of weft yarns containing a glass filament having a second twist of about .7-1.0 turns/inch; and

          (c)     a protective resinous coating applied to said plurality of warp and weft yarns after they have been assembled or laid together, such as to produce a weight distribution ratio of less  
15   than about 2.0:1 based upon the weight of the resinous coating on the weft yarns over the weight of the resinous coating on the warp yarns, said weight distribution ratio created in substantial part by the difference in twists of said warp and weft yarns.

          26.     A multifilament yarn-based woven, braided, non-woven mesh-type, or knitted fabric comprising:

20           (a)     a plurality of warp yarns having a first twist (turns/inch);

          (b)     a plurality of weft yarns having a second twist; and

          (c)     a resinous coating applied to said plurality of warp yarns and said plurality of weft yarns after they have been assembled or laid together, such as to produce a coating weight distribution ratio of less than about 2.0:1 based upon the weight of the resinous coating on the  
25   weft yarns over the weight of the resinous coating on the warp yarns.

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5           27.     The fabric of claim 26 wherein said first twist ratio is less than said second twist ratio.

          28.     The fabric of claim 26 wherein said weft yarns have a lower hydrophilicity than said warp yarns.

          29.     The fabric of claim 26 wherein said tension is also applied to said weft yarns.

10          30.     A method of making a coated fabric comprising:

          (a)     providing a plurality of warp yarns having a first twist (turns/inch);

          (b)     assembling a plurality of weft yarns with said warp yarns, said weft yarns having a second twist; said second twist being greater than said first twist; and

          (c)     applying a resinous coating to assembly of said plurality of warp yarns and  
15 plurality of weft yarns, whereby the weight of the resinous coating on the weft yarns over the weight of the resinous coating on the warp yarns is less than about 2.0:1.

          31.     The method of claim 30 wherein said weft yarns, warp yarns, or both, comprise glass filaments.

          32.     The method of claim 30 wherein the weight of the resinous coating on the weft  
20 yarns over the weight of the resinous coating on the warp yarns is less than about 1.5:1.

          33.     The method of claim 30 wherein said resinous coating comprises a plastisol.

          34.     A method of making a cementitious board, comprising:

          (a)     providing a cementitious slurry;

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5           (b)     depositing said cementitious slurry onto a moving reinforcing fabric, said  
reinforcing fabric comprising a plurality of warp yarns having a first twist (turns/inch), a  
plurality of weft yarns having a second twist which is greater than said first twist; and a resinous  
coating applied to said reinforcing fabric in a coating weight distribution ratio of less than about  
2.0:1, based upon the weight of the resinous coating on the weft yarns, over the weight of the  
10   resinous coating on the warp yarns;

          (c)     shaping said cementitious slurry and said reinforcing fabric into a board, whereby  
said reinforcing fabric is disposed on at least one face thereof, and

          (d)     permitting said cementitious slurry to set.

35.     The method of claim 34 wherein said forming step is continuous or discontinuous.